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# THE AMERICAN JOURNAL OF SOCIOLOGY

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## SOME SOCIAL ASPECTS OF THE CHICAGO STOCK YARDS.<sup>1</sup>

### CHAPTER I. INDUSTRY AT THE CHICAGO STOCK YARDS.

#### SECTION I. THE MAGNITUDE AND DEVELOPMENT OF THE LIVE- STOCK AND MEAT-PACKING INDUSTRY OF CHICAGO.

A RECENT "Market Bulletin" of the Chicago Union Stock Yards makes the following significant observation:

The most remarkable and far-reaching development of the last fifteen years, and the most important in its direct bearing upon the welfare of the whole people, is the rapidly growing demonstration of the fact that the daily necessities of life can be produced and their distribution accomplished on a large scale much better and cheaper than on a small scale; that the greater economy and superior facilities secured by large combinations of capital, labor, and talent make them much more successful in supplying the wants of the people than is possible to individual effort or to a large number of small independent concerns which do not adopt modern methods.

The main factor in this development has been organized coöperation, embracing as chief elements (1) combination of capital, (2) division of labor, (3) expert management, and (4) labor-saving machinery. These have resulted in a degree of commercial efficiency and economy never before approached in any age. Of course this means, relatively, that the producer gets more for

<sup>1</sup>The term "Stock Yards" here should be understood to include the whole district in which the yards are located; the purpose being to study this locality in concrete detail, as a typical modern industrial community, with reference especially to its bearing upon the chief problem of democracy—the physical, economic, and cultural advancement of the whole people as an organic body, rather than as a wasteful collection of warring groups.

his products and the consumer gets better and cheaper commodities than ever before. The natural laws of commerce, manufacture, and trade make this conclusion inevitable. The final result of such improved methods and means on the part of those who supply the world with food and other necessities has always been the greatest good of the greatest number, and this development may eventually resolve itself into universal coöperation.

In no direction has this development been more pronounced and more direct in its bearings upon the welfare of the whole people than in the live-stock marketing and meat-packing industry.<sup>1</sup>

Very few people have any idea of the magnitude of the live-stock industry of the United States. If shown, by official government estimates, that the horses, mules, asses, cattle, hogs, sheep, and goats in the United States number over 140,000,000 head, and that their value is, according to a late estimate by Director of the Census Merriam, approximately \$3,000,000,000, the figures alone would have very little attraction or meaning to the majority of readers. But when told in addition thereto that these animals would make a solid column of more than seventy-six abreast reaching from San Francisco to Boston; or, if placed in single file in a solid procession, would reach six times around the earth and require twenty-one years to pass a given point marching constantly at the rate of twenty miles per day, or that would fill a solid stock train of 2,600,000 modern palace stock cars over twenty thousand miles in length; and, further, that their value exceeds the total combined value of all the corn, wheat, and other cereals, potatoes, hay, cotton, sugar, molasses, tobacco, lumber, wool, coal, petroleum, silver, gold, and precious stones, iron, copper, lead, zinc, and other metals, annually in the whole country—then perhaps some adequate conception may be formed concerning the magnitude and importance of the live-stock industry of the United States. . . .

If, in addition to the above, it is shown that 225,000 of Chicago's population get their living directly from the business activities of the square mile occupied by her Union Stock Yards, and another 225,000 get their living indirectly from the same source; that, in fact, the live-stock and meat-packing industry was the foundation and has always been the chief element of Chicago's wonderful growth and prosperity, and is today Chicago's leading industry; also that, while Chicago is the greatest grain market in the world, the greatest lumber market, and probably the greatest wholesale dry-goods market, yet there is more business done and more in actual value handled in her live-stock trade alone than in her grain, lumber, and dry goods combined; that, in short, Chicago is the head-center of the nation's greatest single commercial interest, her great live-stock markets and correlated packing establishments constituting the mightiest aggregation of labor, capital, and talent ever concentrated into one organized, systematic volume of business, the

<sup>1</sup> *Breeder's Gazette*, November 14, 1900, p. 700.

# MAPS

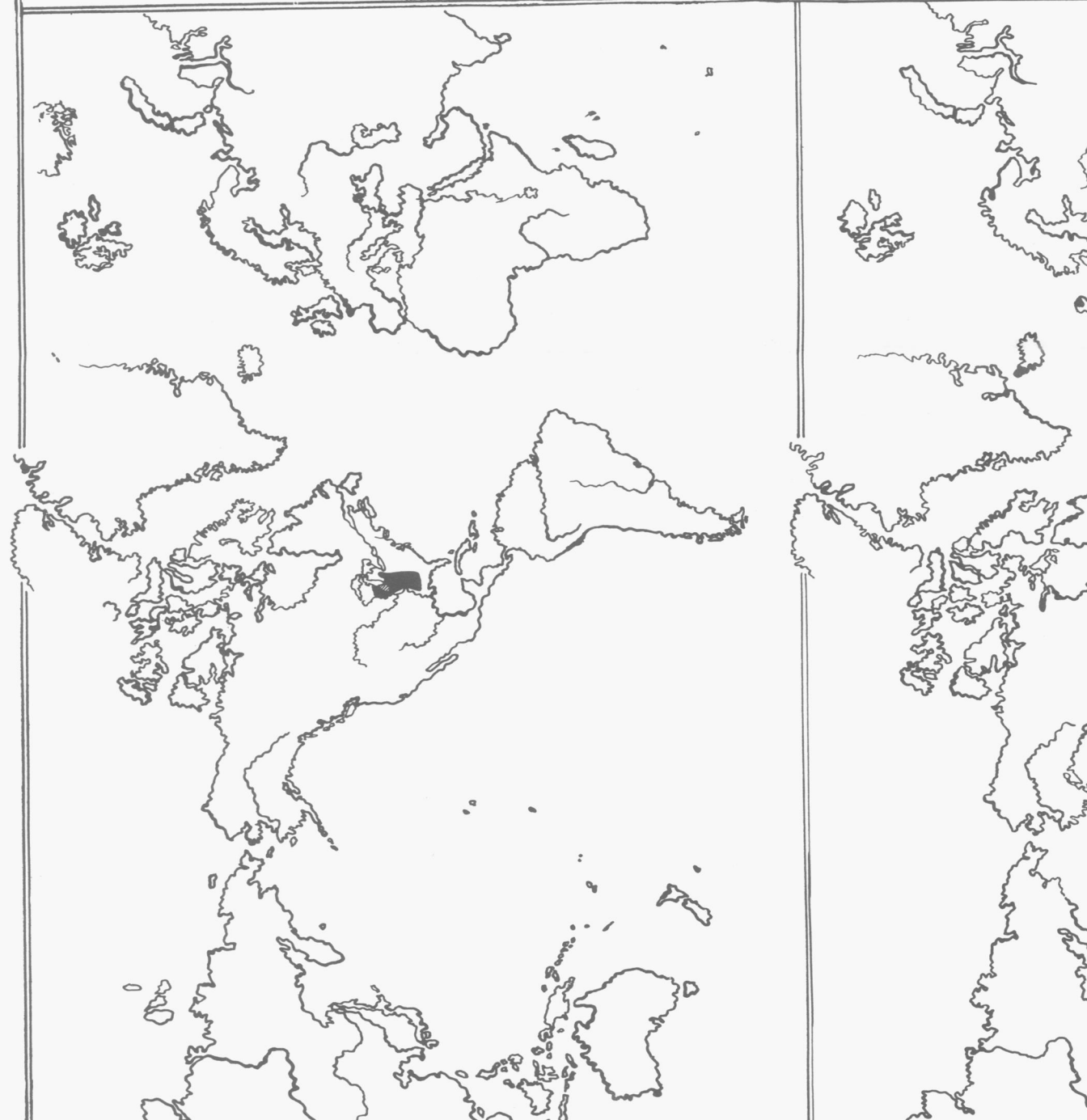
ILLUSTRATING THE  
EXPANSION  
OF A  
TYPICAL AMERICAN  
INDUSTRY:

I. A.D. 1857.

WHERE CHICAGO OBTAINED  
HER LIVE STOCK.

WHERE (ALSO) CHICAGO  
EXPORTED HER MEATS.

Z. A.D. 1877.



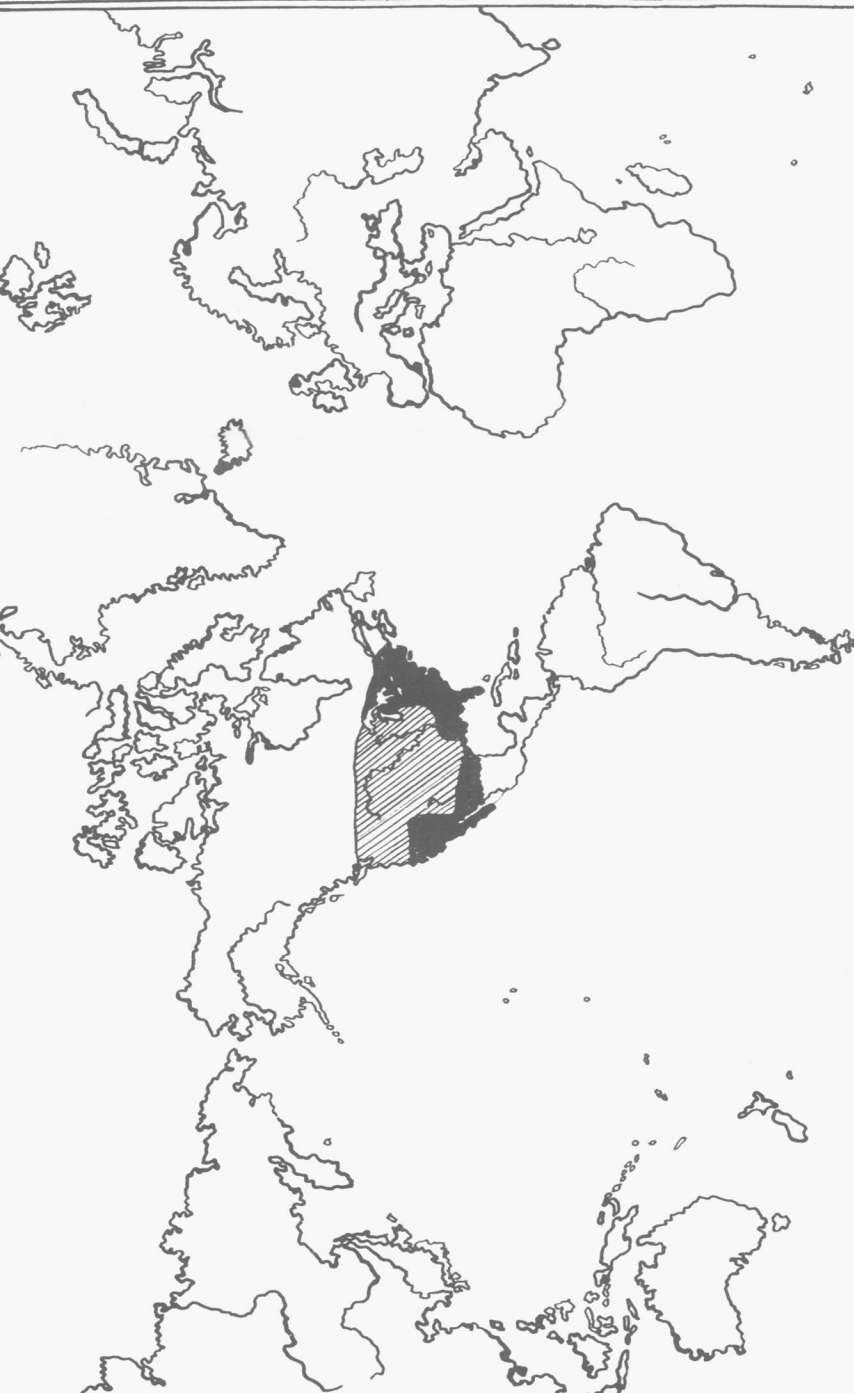
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WHERE CHICAGO OBTAINED  
HER LIVE STOCK.



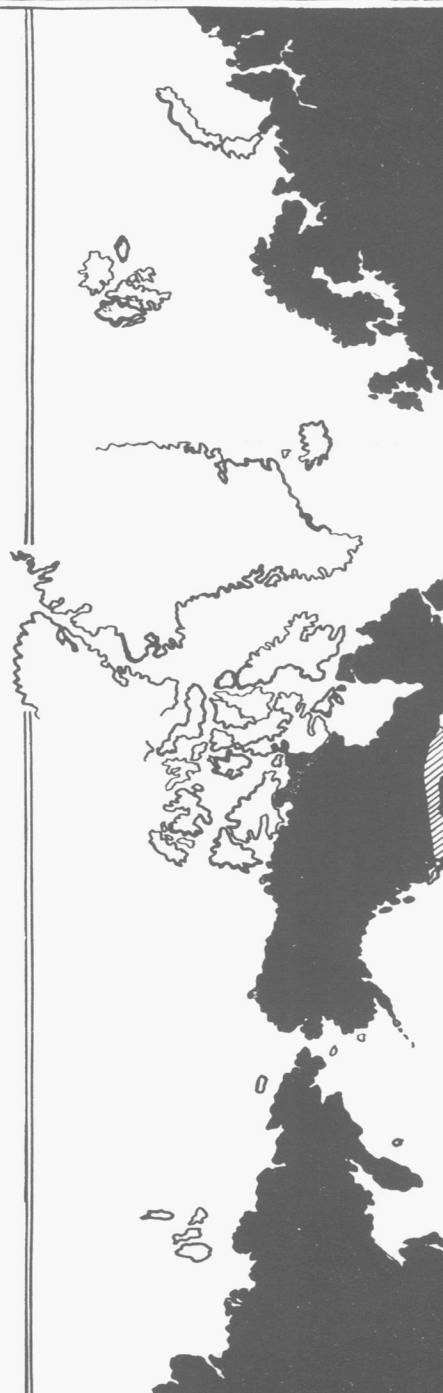
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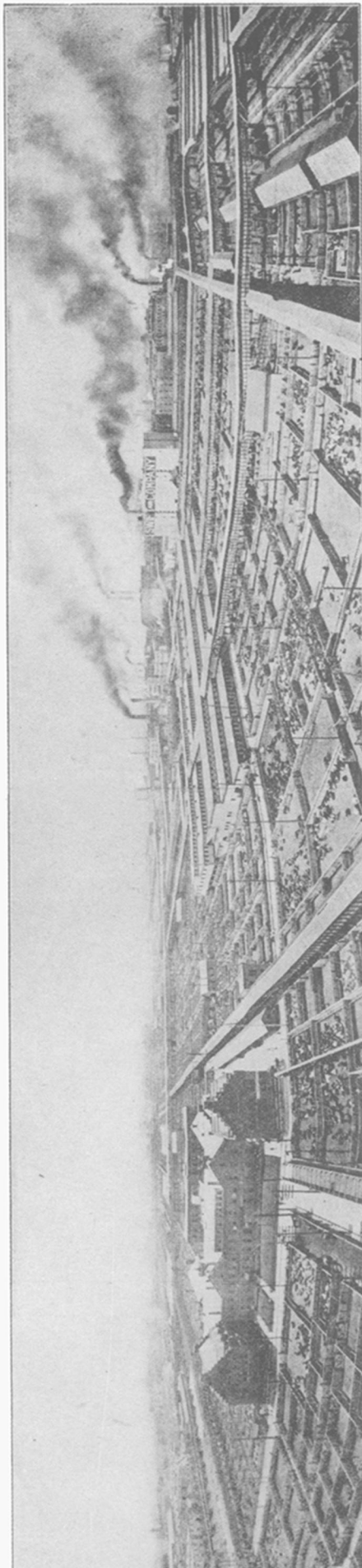
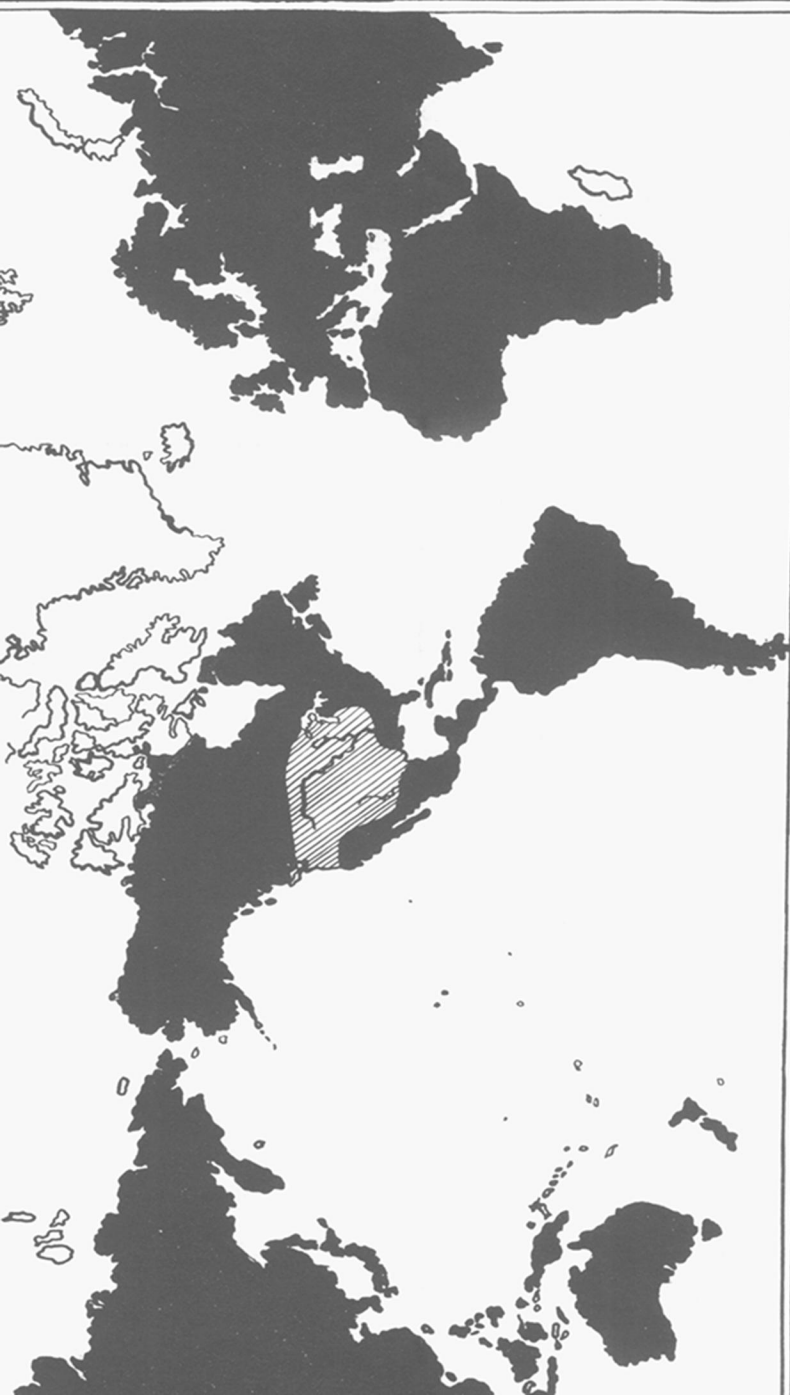
WHERE CHICAGO OBTAINED



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PANORAMIC VIEW OF CHICAGO UNION STOCK YARDS—FROM THE WATER TOWER.

# MAPS

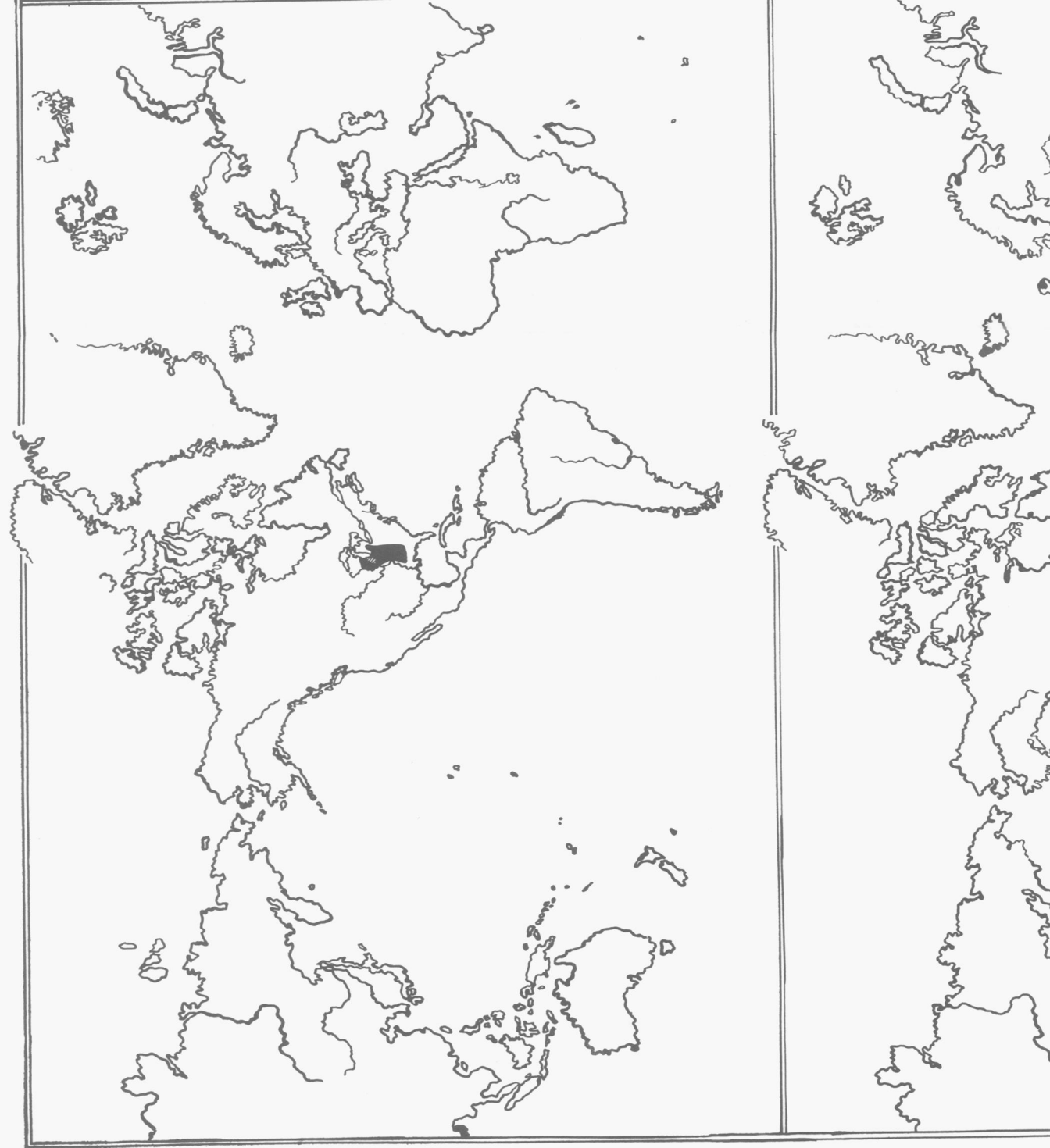
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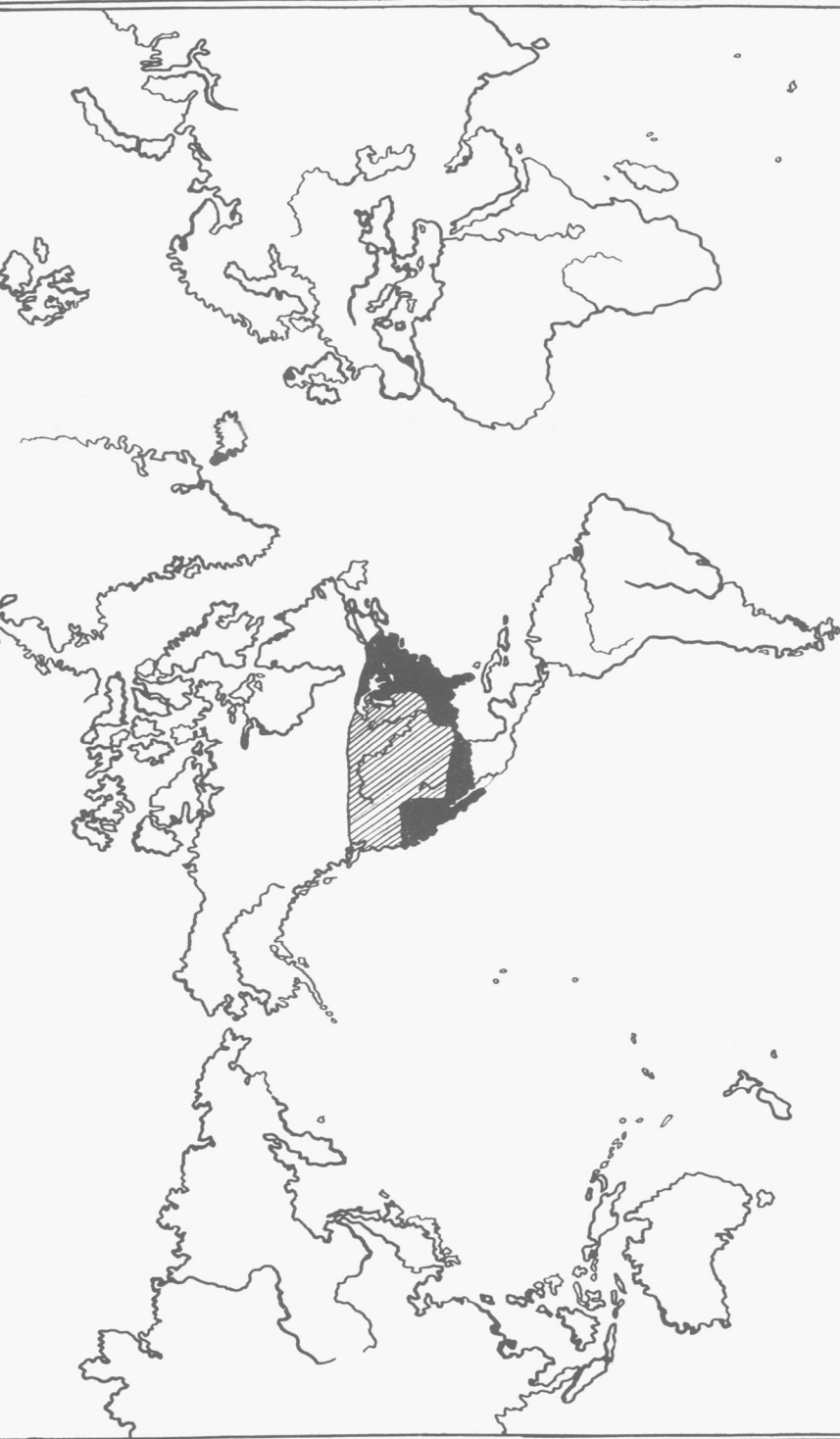
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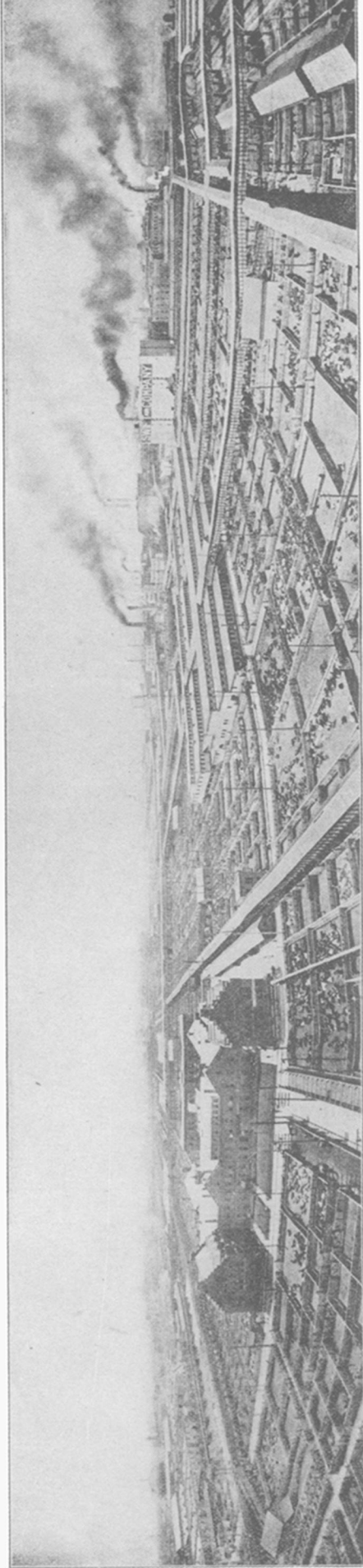
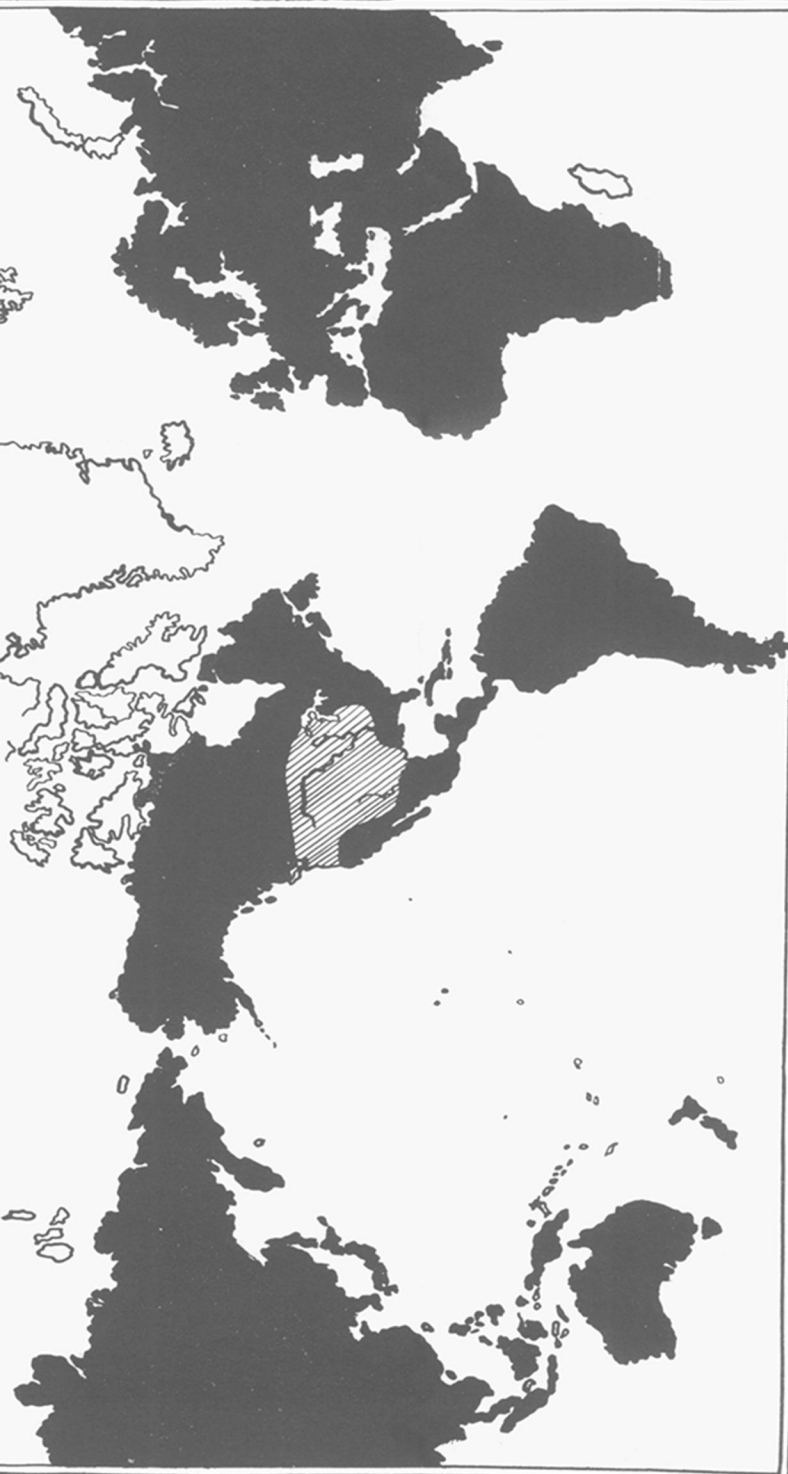




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PANORAMIC VIEW OF CHICAGO UNION STOCK YARDS—FROM THE WATER TOWER.

ramifications of which extend into every department of mercantile life, and the products of which feed the armies and nations of the world—then perhaps we may realize something, not only of the magnitude and importance to the nation of Chicago's enormous trade in animals and meat products of all kinds, but also the importance to Chicago of her commanding position at the head of the live-stock world.<sup>1</sup>

This statement of Chicago's preëminence as a live-stock and packing center may be graphically illustrated by the accompanying tables and diagrams (p. 148).

Prior to 1866 the live-stock trade of Chicago was scattered among six or seven small markets located in different parts of the city. This was an unprofitable arrangement, both to buyers and sellers, accompanied by many inconveniences and losses of both time and money. When these various isolated small stock yards were consolidated into one great market, with prompt and adequate switching facilities, a large number of buyers, and ample market accommodations, the manifest advantages of such a union brought other buyers from the East and exporters to the Chicago market, and the increased demand brought more stock, so that the Chicago market became rapidly the great emporium it now is.<sup>2</sup>

The influence of this market upon the development of the West is of great importance. The western, northwestern, and southwestern ranges soon began teeming with cattle and sheep, and there was a marvelous increase of all kinds of live stock in the corn belt, together with a wonderful advance in quality, breeding, and size. An increased production of corn and other grains and forage for live stock necessarily followed, and the prairie states, where stock-raising and farming were carried on together, advanced in prosperity very rapidly. The increased production of live stock thus encouraged, moreover, was the primary cause of the recent great extension of railroad systems throughout the West. This railroad building in turn caused the

<sup>1</sup> *Thirty-fifth Annual Live Stock Report of the Union Stock Yard and Transit Company of Chicago for 1900*, pp. 3, 4.

<sup>2</sup> The "yards" are bounded on the west by S. Ashland avenue, on the south by W. Forty-seventh street, on the east by S. Halsted street, and on the north by W. Thirty-ninth street and the Chicago river. And this territory is being much extended on the west by the addition of new packing plants.

TABLE I.

ILLUSTRATING CHICAGO'S SUPREMACY AS THE LIVE-STOCK AND MEAT-PACKING MARKET OF THE WORLD IN 1900.

RECEIPTS.									
MARKETS.		Pr Cent.	10	20	30	40	50	60	HEAD.
CATTLE.	CHICAGO.....	40.0							2,865,356
	KANSAS CITY.....	29.0							2,082,795
	OMAHA.....	11.6							828,204
	ST. LOUIS.....	9.7							698,370
	ST. JOSEPH.....	5.5							390,381
	SIOUX CITY.....	4.2							300,437
	TOTALS.....	100.0							7,165,543
HOGS.	CHICAGO.....	47.5							8,696,136
	KANSAS CITY.....	16.9							3,094,139
	OMAHA.....	12.0							2,200,926
	ST. LOUIS.....	9.8							1,791,986
	ST. JOSEPH.....	9.2							1,678,520
	SIOUX CITY.....	4.6							833,141
	TOTALS.....	100.0							18,294,848
SHEEP.	CHICAGO.....	54.2							3,548,885
	OMAHA.....	19.5							1,276,775
	KANSAS CITY.....	13.1							860,449
	ST. LOUIS.....	6.3							416,146
	ST. JOSEPH.....	5.9							390,308
	SIOUX CITY.....	1.0							61,342
	TOTALS.....	100.0							6,553,905
HORSES.	CHICAGO.....	30.0							99,010
	ST. LOUIS.....	22.1							73,145
	OMAHA.....	18.0							59,645
	KANSAS CITY.....	16.6							55,048
	SIOUX CITY.....	9.2							30,668
	ST. JOSEPH.....	4.1							13,497
	TOTALS.....	100.0							331,013
CARS.	CHICAGO.....	46.5							277,205
	KANSAS CITY.....	21.6							128,892
	OMAHA.....	12.1							72,207
	ST. LOUIS.....	9.0							53,523
	ST. JOSEPH.....	7.0							41,864
	SIOUX CITY.....	3.8							22,914
	TOTALS.....	100.0							596,605
SLAUGHTER.									
MARKETS.		Pr Cent.	10	20	30	40	50	60	HEAD.
CATTLE.	CHICAGO.....	42.9							1,916,647
	KANSAS CITY.....	25.5							1,141,427
	ST. LOUIS.....	11.9							532,546
	OMAHA.....	11.6							516,669
	ST. JOSEPH.....	6.6							292,905
	SIOUX CITY.....	1.5							67,655
	TOTALS.....	100.0							4,467,849
HOGS.	CHICAGO.....	45.6							7,241,881
	KANSAS CITY.....	18.0							2,872,128
	OMAHA.....	13.5							2,162,612
	ST. JOSEPH.....	9.6							1,537,582
	ST. LOUIS.....	8.7							1,374,295
	SIOUX CITY.....	4.6							723,348
	TOTALS.....	100.0							15,911,846
SHEEP.	CHICAGO.....	60.6							3,061,631
	OMAHA.....	13.7							687,671
	KANSAS CITY.....	12.5							636,018
	ST. LOUIS.....	7.0							354,432
	ST. JOSEPH.....	5.7							290,590
	SIOUX CITY.....	.5							22,015
	TOTALS.....	100.0							5,052,357

TOTAL VALUATION OF CHICAGO LIVE-STOCK RECEIPTS IN THIRTY-FIVE YEARS, \$5,016,724,310.

settlement of vast regions of territory previously unoccupied save by the roaming bands of Indians and wild herds of cattle and buffaloes. The opportunity for homes on virgin soil attracted from Europe thousands of the most capable and enterprising agricultural families, who have since become numbered among our most prosperous and valued citizens.

This marvelous development of industry is illustrated in more detail in the *Thirty-fifth Annual Live Stock Report of the Stock Yard Company for 1900*. It is there shown that the present capacity of the yards is 75,000 cattle, 80,000 sheep, 300,000 hogs, and 6,000 horses. The area of the yards is nearly 500 acres, 420 of which are bricked or planked. Two hundred and fifty miles of railway tracks lie within the yards. Thirteen thousand uncovered pens, and 8,500 double-decked or covered pens, are connected by 25,000 gates. And the water, sewer, and lighting systems are correspondingly enormous. More than 400,000,000 head of live stock have been here received and shipped in the past thirty-five years, at a total valuation of more than \$5,500,000,000.

This whole stupendous industrial development represented at the Chicago Stock Yards is typical for the evolution of large-scale industries in the latter half of the nineteenth century. The accompanying maps<sup>1</sup> graphically illustrate this. In 1857, before the period of great railroad expansion, it will be seen that the area from which Chicago obtained her live stock was practically limited to the adjacent territory from which the stock might be driven into the city on foot, and that the area to which Chicago shipped her meats was but a small section of the Mississippi valley. In 1877, it will be observed, the area from which Chicago obtained her live stock had expanded to include most of the western, southwestern, and northwestern grazing lands of the United States, while the area to which she shipped her meats had expanded to cover the whole territory of the United States and immediately adjacent countries. At the present

<sup>1</sup> From original drawings by Miss Abbie G. Swift, of the Chicago Normal School. The sources used are: GRIFFITH'S *Live Stock Annual* for 1878, GRAND'S *Illustrated History of the Union Stock Yards*, and special reports from the yards.

time, as shown in the third map, the area of live-stock sources is still constituted chiefly by the grazing lands of the United States, but the area to which Chicago now exports her meats has become practically the whole area of the habitable world. In other words, modern large-scale industry, as typically represented at the Chicago Stock Yards, now deals with a world-market and must grapple with the great problems of international commerce. The importance of this movement of commercial expansion, in indirectly bringing nations together and advancing the moral and political unity of the human race, can hardly be overestimated.

#### SECTION II. METHODS AND PROCESSES OF THE PACKING INDUSTRY AT CHICAGO.<sup>1</sup>

Up to 1870 the preservation of pork and beef products had not been carried practically beyond the air-drying and the salt-and pickle-curing of hams, bacon, mess pork, dried and corned beef, etc. The cattle of the western plains were shipped alive to eastern markets and there slaughtered, this method entailing a heavy shrinkage in weight, and other losses. A great impetus was received by the meat-packing business when the stationary ice refrigerator was perfected, enabling the slaughterer to pack meats in summer as well as in winter, and also to keep fresh meats in good condition for many days. Following this the artificial ice and cold-storage methods of refrigeration and preservation were developed, materially increasing the possibilities of centralized packing. In 1871 an ice refrigerator was mounted on car wheels, filled with dressed beef, and started for an eastern market, where it arrived in good condition. From this start the modern refrigerator car system of transportation has been evolved. It was more economical to slaughter live stock in the West, ship the edible portions to the consumer, and convert the offal at the point of slaughter into by-products, than to transport the live animal. In the early seventies the glue-maker appeared and relieved the slaughterer of a part of the offal, the disposition of which up to this time had been a source of expense and

<sup>1</sup>For valuable material on this section the writer is indebted to ARMOUR & Co., *Armour Products and Packing Methods*.

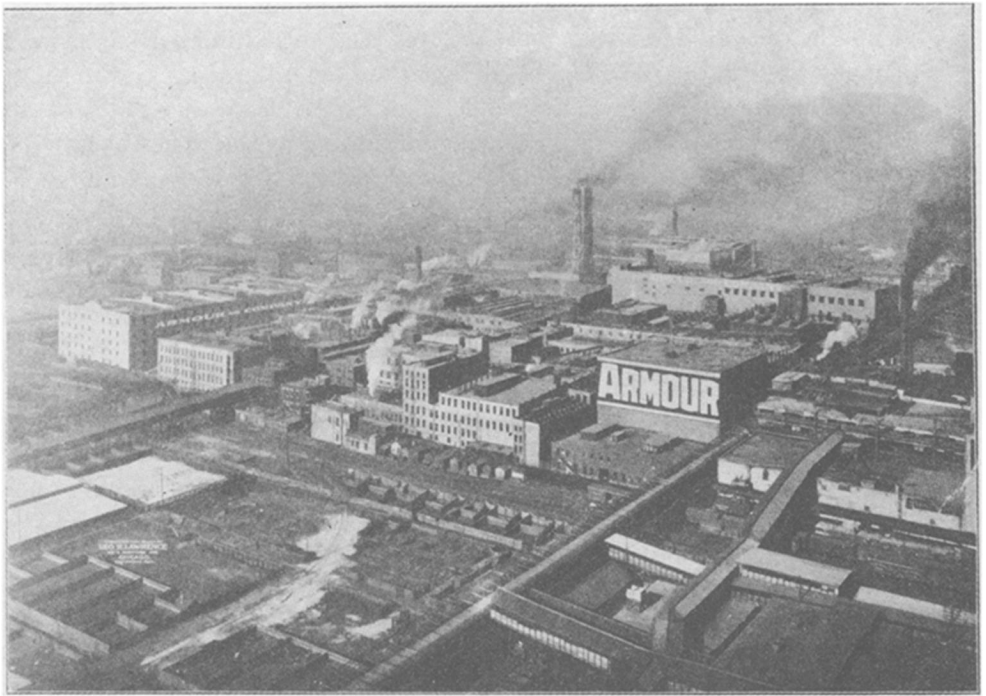
annoyance. The glue-maker was followed by the fertilizer manufacturer, and thus a start on by-product utilization was made. The Appert process of preservation of meat in tins, through complete sterilization by thorough cooking and concentration, and packing in air-tight packages, was first successfully applied to meat food products on a large scale in 1874, enabling meats to be safely transported and held for an indefinite period in any climate without cold storage. This system secured a still wider radius of distribution of meat products from centralized slaughtering points. Thus in the constant application of the results of abstract science by invention, modern industry has found its chief method of world-wide expansion, improvement, and consolidation.

An account of the technical process of a large modern meat-packing plant furnishes one of the most interesting chapters in any description of modern industry. Such an account can be given here only in outline. Let us start with the shipping of the stock from the farm. Say a stock buyer living in a small town in the corn belt of the Mississippi valley purchases from neighboring farmers 20 beef cattle, 120 hogs, and 200 sheep, and has them delivered at the railway station. The hogs and sheep are loaded into double-decked stock cars, the cattle into cattle cars, and all consigned to a live-stock commission house at the Union Stock Yards in Chicago. The shipment arrives early in the morning; the cattle, hogs, and sheep are taken to their respective divisions, fed and watered, and placed in pens until sold—a yardage charge being made by the Stock Yard Co. for this service. The commission man is soon in treaty with some of the hundred buyers representing the slaughterers, feeders, and shippers. Offers are made and refused; counter-offers are tendered; comparison is made with other lots; and the consignment, let us say, is finally disposed of to one of the large packing houses at the yards.

In view of the fact that millions of dollars worth of live stock are thus handled annually by these buyers and sellers, and that their responsibility is correspondingly very great, it is interesting to note, in this connection, the code of business



ethics in force among them. All transactions between buyers and sellers within the pens are made solely upon word of honor, often at the mere dropping of a whip, a nod, or other mute sign of acceptance, without a scratch of pencil or pen upon paper. And such bargains are never questioned, although not a



**BIRD'S-EYE VIEW OF ARMOUR & CO.'S CHICAGO PLANT—TAKEN FROM A BALLOON.**  
(Land area, 50 acres; floor area, 150 acres.)

dollar may have been passed in the transaction or even a note made in a vest-pocket memorandum. This system of transacting the sales has its obvious conveniences, and is regulated by an organization of the parties concerned which will be studied later.

After the stock has been sold, an inspection is made by United States government, and also by Illinois state inspectors. The stock is then weighed—the weight being automatically recorded on four facsimile sheets for the use of the weigh-master, buyer, and seller; yardage and commission charges are

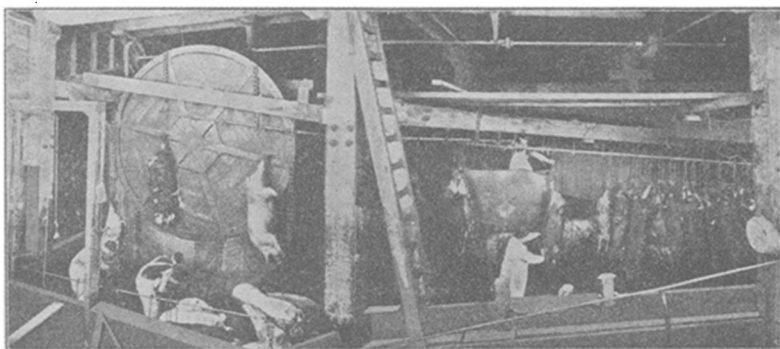


figured, and settlement is made. The stock is then driven over elevated runways up to the fourth story or top floor of the slaughter buildings, the product afterward working down again by gravity to the various floors, where it is finally distributed to different departments.

For example, the hogs are driven in continuous procession up the elevated runway entrance to the hog-killing department, and into a small pen. Here they are caught up by the hind leg by a large revolving wheel and started down the trolley past the butcher, who quickly dispatches them as they pass by a skillful thrust of a sharp knife in the throat. After a plunge in hot water to facilitate the removal of bristles and hair by the automatic-power scrapers, the hog, suspended from a sloping overhead trolley, passes by gravity through a double line of workmen, each having his special part of the task to attend to. The animal is thus rapidly cleaned, inspected, divided into halves, and run into the hanging-room, where it remains for seventy-two hours in low temperature for the animal heat to pass out before going on to the cutting-floor.

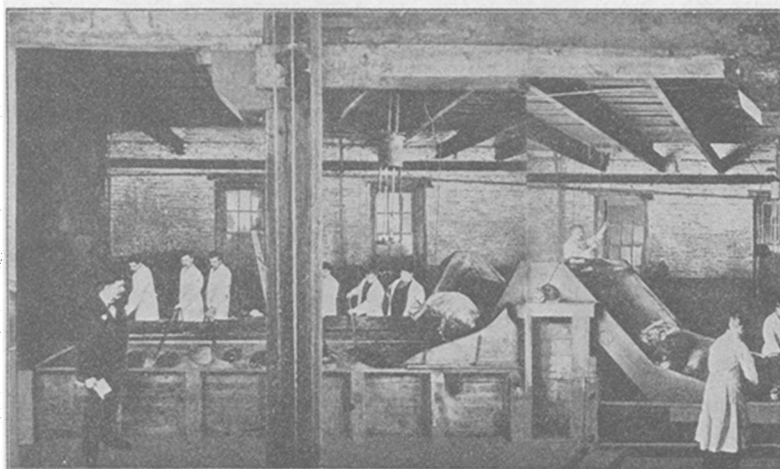
In the hanging-room government inspectors take numerous samples from each animal, samples and animals being tagged with a corresponding number. The samples are taken to the United States government microscopic inspection rooms, where slides are made and the meat is examined for trichinæ. The value of this inspection cannot be overestimated. It is absolutely in government control and makes almost certain a complete protection of the public from infected meats.

From the hanging-floor the hog goes to the cutting-floor, where the loin is taken out, and where bacon, ham, back, sides, etc., are cut from the carcass and dropped into the storing cellars below, where many million pounds of product may be seen in cure at one time. This cutting and curing of the hog has become much diversified since the early days of the business. Hams, shoulders, sides, or barrel pork composed the selling list of thirty years ago; today the variety of cuts is bewildering to an outsider. Why has this change occurred? Because the world is today the packer's market, and he has to study the peculiarities



Hoisting the hogs on a revolving wheel.

The butcher at work.



The automatic scalding apparatus.

Scraping bench.



Hog bodies coming from the scraping machines.

Government inspector watching the removal of viscera.

**HOG-KILLING AT ARMOUR'S.**



Cleaving and removing lard.

Weighing and tagging.

The hog coolers.

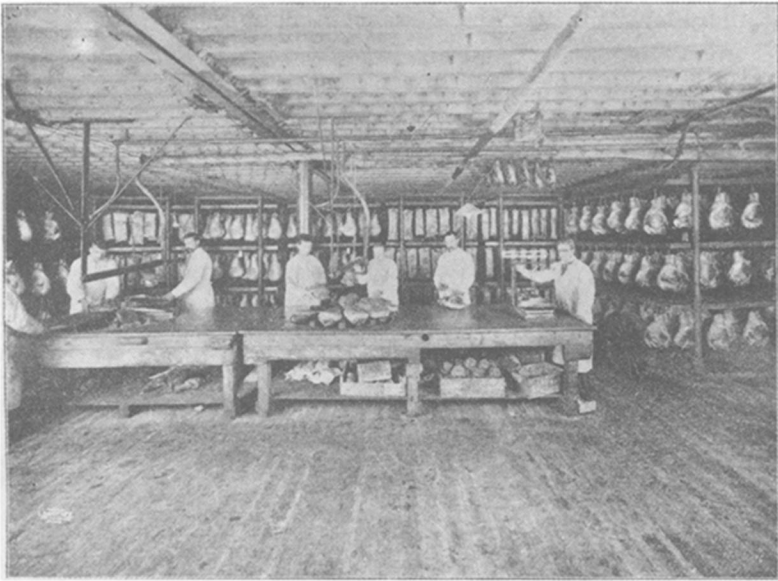
and preferences, not only of each country, but of each section of the various countries. The daily capacity of the largest plants may be judged by the fact that in one of them alone at the Chicago Stock Yards 18,900 hogs have been killed in one



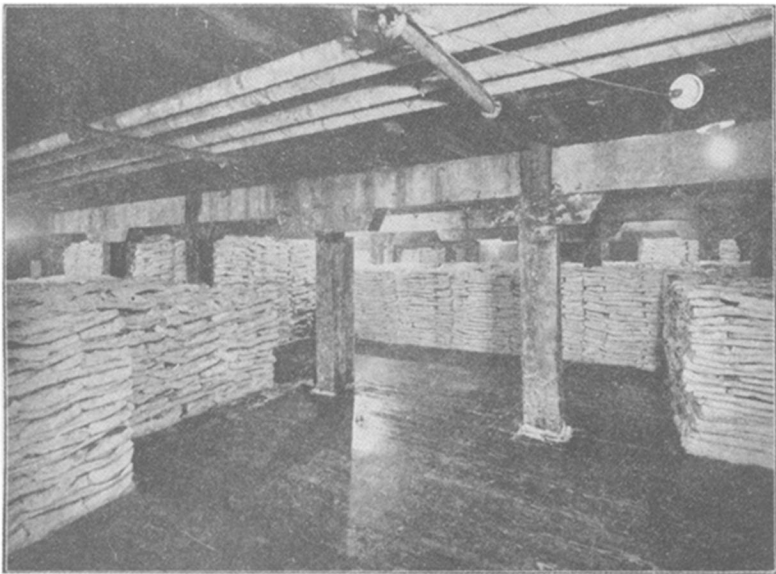
UNITED STATES GOVERNMENT MEAT INSPECTION OFFICE AT THE  
CHICAGO STOCK YARDS.

day; the day's total killing in the various plants of the same company having exceeded 40,000 hogs.

In the cattle-killing department, when the day's work begins, the animals are driven from the storage pen up the inclined runways to the small stall-like individual pens, where they are killed



**BRANDING "PREMIUM" HAMS.**  
(Swift & Co.)



**SALT PORK IN STORE.**  
(Swift & Co.)

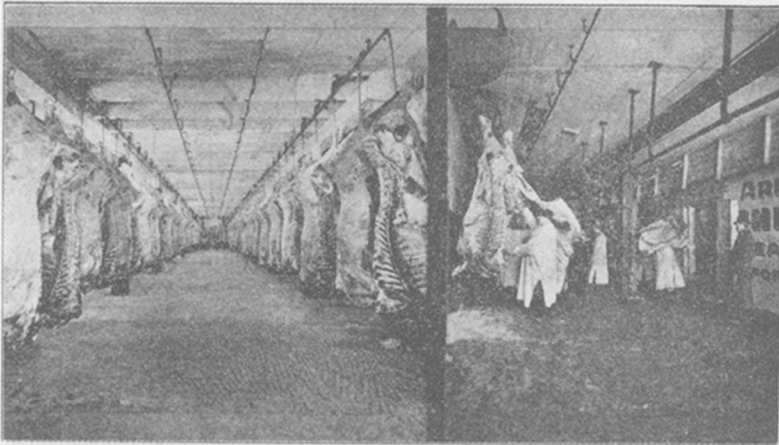
by the blow of a hammer upon the head, as indicated in the accompanying photographs. The carcasses are then suspended from overhead trolleys and bled, skinned, inspected, dressed, and weighed, after which they are placed in the chill-rooms, and



Killing and hoisting.

Bleeding and removing  
the hides.

Dressing the carcasses.



In beef chill-room.

Loading into refrigerator cars.

#### CATTLE KILLING AT ARMOUR'S.

where they remain two or three days until all animal heat has been removed. Such as are intended for shipment as dressed beef are loaded into refrigerator cars, in which a uniform temperature is maintained, and sent to the larger branch houses and distributing points, where deliveries are made to the local butchers,

usually at a lower price and with the meat in better condition than home-slaughtered beef. If the product is to be exported, the refrigerators are run alongside the ocean liners, and the meat is transferred to especially arranged chill-rooms in the steamers and delivered in prime condition at their destination.

In this connection one of the most interesting phases of the process consists in the preparation of what is called "Kosher meat." This term is applied to the beef killed by specially appointed orthodox Jewish officials for the use of the orthodox Hebrews throughout the country. This trade forms no small part of the packing business. In Chicago alone there are 200,000 Hebrews, and here is consumed more "Kosher" meat than in any other city in the world except London. The practice of slaughter by this method illustrates the intense persistence of some of the race's oldest traditions. The Mosaic law, referred to in this connection, and found in Lev. 17: 14, says: "The blood is the life of all flesh, the blood of it is for the life thereof; therefore, I said unto the children of Israel, Ye shall eat the blood of no manner of flesh, for the life of all flesh is the blood thereof. Whosoever eateth it shall be cut off." The official Jewish butcher is called a *shochett*. When a beast, say a calf, has been approved of by the *shochett*, it is secured around one leg by a rope, and a pulley raises the animal from the floor. Another leg is secured, the beast's head is bent back, and the sharp knife of the *shochett* is applied at the throat. The animal is then inspected after killing, and, if found perfectly healthy, a stamp is placed on each piece in such a way that all who use it may know that the Mosaic law has been fully complied with. Only the fore-quarters of the beef are used in this trade—the Chicago trade alone using about 4,000 each week. And this fact makes the trade in "Kosher" meat especially profitable, in that the fore-quarters thus often find as ready sale and as good prices as the hind quarters.

Beeves intended for hotels, restaurants, or other local consumption, or for special products, as dried beef, barrel beef, canned meats, etc., are taken from the chill-rooms and sent to

the cutting-floor, where, by means of steam-driven saws, and in the hands of skillful knifemen, appropriate distribution is made. The hides have previously been sent to the hide seller, and all offal has found its way to the fertilizer and glue works.

The sheep are killed and dressed in much the same way, except that in dispatching them their throats are cut by a single cross stroke of the knife.

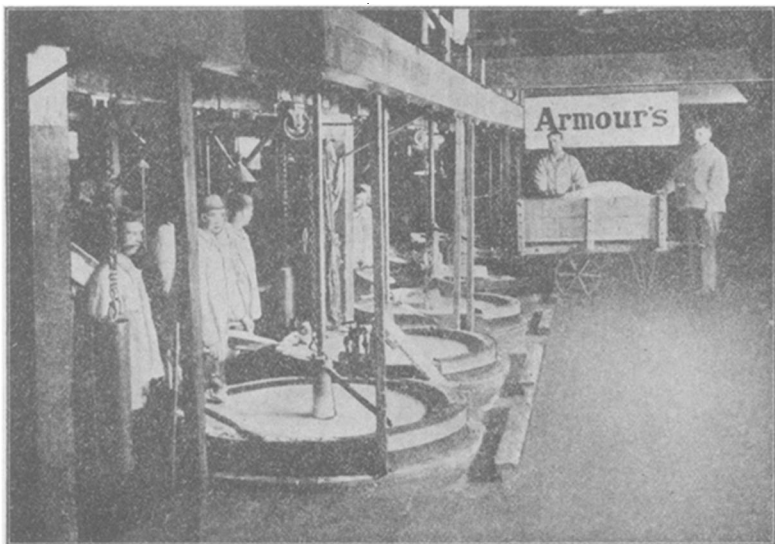


SOLDERING CANS.

In the canning department may be noted the preparation for market of the various meats that make up the enormous bulk of food product annually turned out in canned form by the industry. The meat is first carefully trimmed, and, after being cooked thoroughly until sterilization is secured, it is placed in cans, which, after having been hermetically sealed, are lacquered and labeled. Other divisions of the process, which cannot be fully described here because of lack of time and space, are the making of the various beef and meat extracts; of sausages—literally miles of which are produced weekly; of lard and refined oils, tried out in enormous iron vats; and of numerous tripe and pigs' feet products.

The manufacture of by-products is one of the most interesting

features of the business, and has assisted materially in the development of the meat industry, especially in enlarging the radius of distribution of its products. A steer weighing 1,500 pounds dresses out approximately 825 pounds of beef; the remainder of the animal, consisting of hide, head, feet, blood, fat, casings, etc., along with the offal from hogs and sheep,



MAKING OLEO OIL.

furnishes material for the by-product plants. The head and feet go to the fertilizing and glue works. The horns are cut off to be converted into combs, buttons, hairpins, and fertilizers; the hard shin bone, with the thigh and blade bones, is made into knife and tooth-brush handles, pipe mouth-pieces, buttons, and bone ornaments, and the waste into glue and fertilizer. The hoof is made into hairpins, buttons, yellow prussiate, and fertilizer. The feet, knuckles, hide clippings, sinews, small bones, etc., are made into glue, gelatine, isingglass, neat's-foot oil, tallow, grease, stearine, and fertilizer. The cattle tails go to the curled-hair works, bristles to the bristle works; the tallow and grease go to the soap works, and are converted



into toilet and laundry soaps, washing powders, and all grades of glycerine. The pig's stomach and pancreas, the sheep's thyroid and other glands, go to the pharmaceutical laboratory, and are made into pepsin, pancreatin, dessicated thyroids, and other medicinal articles. The blood and the tankage (the residue left after extracting the grease and tallow from meat



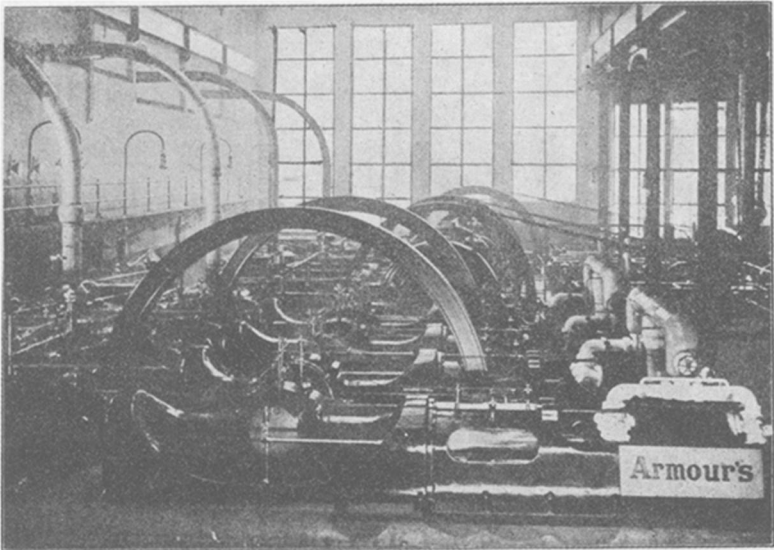
PACKING BUTTERINE.

scraps), and all waste of a nitrogenous or phosphatic character, are taken to the fertilizer works and are converted into fertilizers of different analyses, albumen, stock and poultry food, etc. Phosphoric acid and phosphorus, bone black and black pigment, sulphate of ammonia, bone oil, and many other articles are also made from packing-house waste.

The sheep pelts go to the wool pullery, where the wool is taken off, cleaned and braided for the woollen goods and felt manufacturers, and the pelts with the cattle hides go to the tanners. Hair waste is made into a hair felt for insulation purposes, or prepared for the plasterers. All by-products are manufactured under supervision of expert chemists, and thoroughly

equipped laboratories are maintained. Under the system in vogue before the centralization of packing, this inedible material was very largely thrown away. Now thousands of skilled employés, working in expensive plants, save, and make valuable, millions of dollars worth of this product.

The auxiliary departments and distributing facilities owned



ELECTRIC POWER PLANT AT ARMOUR'S (12,000 HORSE-POWER).

by the larger companies are also very extensive. Each of these companies owns its own refrigerator cars, ice houses, steel tank cars, etc. The tin pails and packages used in the business are made by machinery at each of the plants. Large car shops for the manufacture and repairing of cars, and large machine shops for the making and repairing of the machinery used, are also maintained. The motive power for operating the works is developed in a central power-house, at the most improved plants, and is transmitted electrically to points where the power is needed. Automatic stokers feed the boilers; the ashes are removed by machinery; an elevated electric trolley railway conveys materials and products from one department to another, and power

elevators and conveyors move boxes, barrels, and supplies from floor to floor.

Thus, through by-product plants, refrigeration, and the perfection of the canning process, with the introduction of a thoroughly scientific system, the live-stock industry has been put upon a solid basis. Packing centers provide cash markets for all varieties of live stock. The cost of new foods is reduced; the cost of living in different parts of the world is equalized, and that portion of the animal not used for food, clothes, glue, soaps, or in the arts and sciences, is returned to the farm as fertilizer, to grow more grain and grass, to feed more live stock, again to make the circuit.

#### SECTION III. MANAGEMENT AND ORGANIZATION OF THE PACKING INDUSTRY AT CHICAGO.

The live-stock and meat-packing industry includes virtually in a single organization all of the various agencies for handling the stock from the time it reaches the yards to the time it is sent out in the form of consumable goods to the public. These agencies at the Chicago Stock Yards may be divided into three general divisions, namely, the Union Stock Yard and Transit Co., the Live Stock Exchange, and the packing plants.

The functions of the Union Stock Yard and Transit Co. we have seen to consist chiefly in organizing the market and in furnishing the place and facilities for the purchase and sale of the stock.

The Live Stock Exchange deserves special attention in respect to the management and organization of the business. In the words of the statistician of the Stock Yard Co.:

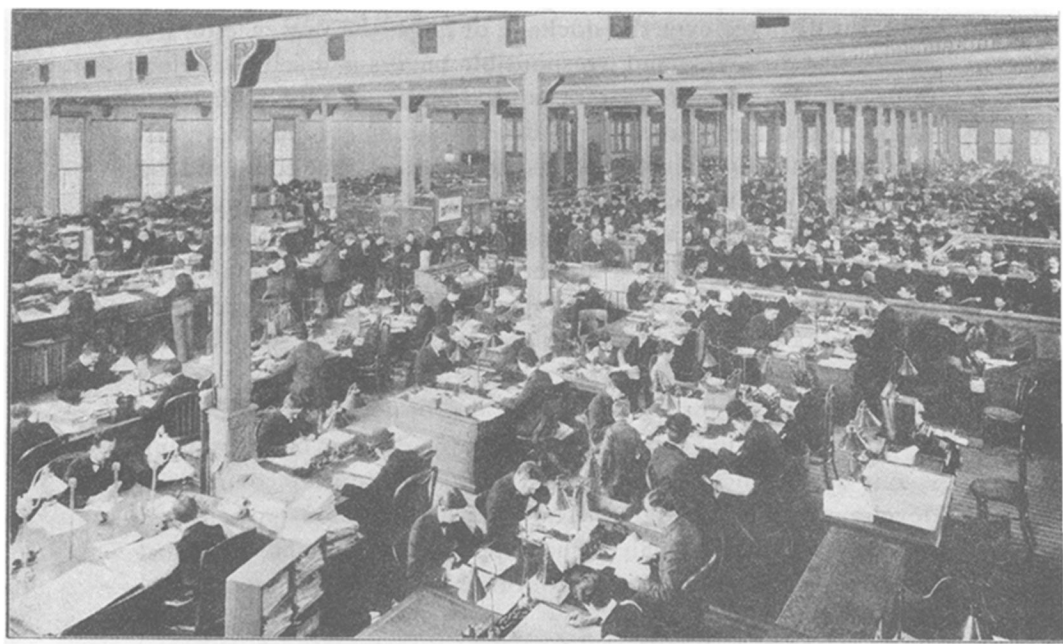
A live-stock exchange is an association for the purpose of encouraging the production, sale, and distribution of live stock and meat products, and for defense of all interests identified therewith, against everything detrimental to honest trade. It is a name given to a voluntary association of live-stock producers, shippers, packers, commission men, and bankers, organized, not for profit, but to secure, in the mutual interests of producers, consumers, domestic distributors, and exporters of live stock and meat products, uniformity of business usages and customs, adequate inspection of animals and meat, needed legislation for the inspection and promotion of live-stock interests, and all other legitimate advantages which are to be secured through the power of organization.

The Chicago Live Stock Exchange was the pioneer of its kind. And it soon became so successful that nearly all other live-stock centers have organized on its plan. Obviously these exchanges can accomplish through organization much more than could be secured by individual effort. They came into existence from the necessity of defending the live-stock trade against the constant disputes over the dockage of hogs, the presence on the markets of dishonest and irresponsible buyers and sellers, unjust discrimination in railroad rates and commissions for selling live stock, the slaughter and sale of diseased animals for food, injurious legislation, and other wrongs and abuses, that could not be suppressed in any other way than by an agreement of the majority to abide by certain rules and refuse to deal with those who violated such rules. It is this organization which maintains the rigorous code of business ethics above referred to. The exchange is, in fact, a large and powerful labor union, composed chiefly of the commission men, who receive and sell live stock on the market as agents for the producers and owners.

The modern packing plant, as has already been made evident, is one of the most complex and highly organized commercial developments of the age.<sup>1</sup> The almost miraculous system and attention to details which characterize its conduct are most interesting. It is, indeed, a thoroughly organized and highly trained industrial army. The most accurate analogy among social institutions is perhaps the military regiment. One of the largest packing plants at the yards may be taken as an example. At the head of the direct management of this plant is the superintendent, corresponding to the colonel of the regiment. Under him is the assistant superintendent, corresponding to the lieutenant-colonel; and several division superintendents or staff aids, corresponding to orderlies, etc. The whole plant is divided into departments similar to battalions. At the head of each

<sup>1</sup>The chief packing plants at the yards are: Armour & Co., Swift & Co., Nelson Morris & Co., Anglo-American Provision Co., Libby, McNeill & Libby, Fairbank Canning Co. (canning for Morris), Schwarzschild & Sulzberger Co. (in process of construction), Continental Packing Co., Thomas J. Lipton Co., Boyd, Lunham & Co.; all aggregating about 30,000 employés.

department is a department superintendent, corresponding to the major. Each of these department superintendents has his own staff of clerks and assistants. The department itself is also divided into sub-departments, at the head of which are sub-department superintendents, corresponding to the captains of



GENERAL OFFICES, SWIFT & CO., CHICAGO.  
(46,918 square feet in area; 685 employés.)

companies, and under these sub-department superintendents are also assistants and subordinates, corresponding to the lieutenants, sergeants, and corporals.

The lowest officer in the list is called the straw boss. He has charge of a particular small gang of workmen, like a corporal, and is perhaps one of the most typical examples, as far as organization goes, of the bearing of modern industry upon democratic social control. Where large numbers of foreigners are employed, as at the Chicago Stock Yards, he is also usually a foreigner. Sometimes inclined to be a despotic petty tyrant, the straw boss

is usually a recognized social leader among his fellows, at any rate while he holds his position. One interesting function which he performs in connection with his position is the bringing of his friends and relatives from foreign countries to America by letters and descriptions of the opportunities of profitable employment.<sup>1</sup> Thus, where companies themselves are prohibited by law from importing contract labor, the straw boss and his friends virtually import foreign labor for contract, often assisting their neighbors across the water to make the voyage by means of loans or gifts of money. Wages at the yards are usually better than those received in foreign countries by the peasants thus brought into the work in this country; and this fact indicates an often overlooked field of positive service rendered by great American industries to the growth of universal democracy.

The division of each department into sub-departments may be illustrated in the case of a single sausage department, as follows:

Department superintendent.	
Assistant superintendent.	
General clerk.	Assistant clerk.
Foreman of making division.	Foreman of receiving and shipping division.
1. Summer-sausage rockers.	1. Supply-room.
2. Summer-sausage stuffers.	2. Casing-room.
3. Domestic-sausage stuffers.	3. Summer-sausage packing-room.
4. Smoke-house.	4. Summer-sausage coolers.
5. Cooking-room.	5. Domestic-sausage coolers.
6. Pickle-trimmings.	6. Dry-rooms.
7. Tripe and pigs' feet pickling.	7. Tripe and pigs' feet packing.
8. Extract-room.	8. Sewing-room.
9. Trimming-room.	9. Spice-mixing room.
10. Boiled ham.	

Now, it is significant for the present organization of business that all of these departments and sub-departments compete against each other just as sharply as they would and do against outside companies. All products and materials passing from one department to another are bought and sold by the departments concerned at the market rates given out at the beginning

<sup>1</sup> It is noteworthy here that MR. J. M. GILLETTE, entirely independently of the present writer, found similar methods in use at South Chicago. Cf. *AMERICAN JOURNAL OF SOCIOLOGY*, July, 1901, p. 120.

of each day by the superintendent or his subordinates. In this way the strictest economy, division of labor, and definite location of responsibility are secured. Properly conducted, this organization of business is highly efficient and wholesome, but it, of course, may lend itself readily to abuses of management.

One of the chief difficulties in the management of a great plant is the proper organization and direction of foreign labor. And no place is more typical in this respect than the Chicago Stock Yards. As an illustration of this fact the following nationality census of a typical producing department is submitted. It is but slightly more varied than most of the other departments, and represents a total force of 225:

Germans	-	-	-	98	Canadians	-	-	-	2
Americans	-	-	-	50	Russians	-	-	-	2
Irish	-	-	-	29	Welsh	-	-	-	2
Polish	-	-	-	13	Swedes	-	-	-	1
Bohemians	-	-	-	13	Norwegians	-	-	-	1
English	-	-	-	6	Swiss	-	-	-	1
French	-	-	-	3	Finlanders	-	-	-	1
Dutch	-	-	-	2	Italians	-	-	-	1

It will readily be seen from this showing that to maintain such a heterogeneous force in harmonious and efficient coöperation involves no small problem. The managers who endeavor to direct such a body of workmen—often new to American ways, ignorant of the language, timorous, quick to take offense, and slow to understand—deserve public encouragement and the fullest coöperation of all the agencies of general education and enlightenment.

The system of time-keeping and employment connected with one of these large plants is an important aspect of the organization. When workmen are needed in any department, the head concerned either goes out to the streets near the time-keeping office, where men are usually waiting to be employed, and selects the workmen himself, or he sends his instructions to the time-keeping office and has the workmen selected by officers there. In the plant taken above as an example, this selection is made by the private policeman stationed at the time-keeping offices. When a workman has been selected, he receives from the clerk

at the time-keeping office in the morning a small brass check with his number upon it. This is his individual certificate of employment. During the middle of the forenoon time-keeping clerks make the rounds of the various departments, noting all absences upon their records. This is again repeated in the middle of the afternoon, and at the end of the day's work the workman deposits again in the time-keeping office his brass check, to be received once more the next morning, when a new start is made. Thus each manual workman in the plant is regularly marked four times a day with respect to his presence or absence.

In addition to these general divisions of the organization, each of the larger plants has its own private police department, fire and water departments, and, as is coming to be the case, its own medical department, where accidents and sickness occurring in the course of the work are given attention at the expense of the company.

#### SECTION IV. BENEFITS TO DEMOCRACY BY THE LIVE-STOCK AND MEAT-PACKING INDUSTRY OF CHICAGO.

The positive and direct benefits to the cause of modern democracy most conspicuously evident in the organization of industry at the Chicago Stock Yards are, of course, chiefly commercial and economic. But through these means, and also more incidentally, there are very substantial benefits of a broader social nature conferred by the industry. The former may be enumerated as follows:

1. Increase and qualitative improvement in the live-stock production.
2. Increase in corn production.
3. Development of railway facilities.
4. The reduction in the cost of meat foods.
5. The expansion and development of export trade.
6. The stimulus to important banking and exchange interests.
7. The better regulation of the flow of goods and of the range of prices.

In addition to these, the more broadly social benefits arising from this great organization of business at the Chicago Stock Yards are as follows:



1. The improvement of legislative control over the conditions and methods of the business through its centralization and organization in the factory form.

2. The opening up of the great West to effective cultivation and settlement.

3. The bringing of the more backward peoples of the earth by immigration and disciplinary organization up more closely to the progressive American standard of life; and

4. The movement toward the organization—through the extension of foreign commerce and the attendant diffusion of the ideals and practices of civilization—of a more complete political and social unity throughout the world.

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[*To be continued.*]